

Republic of Yemen
Ministry of Higher Education & Scientific Research
**21 SEPTEMBER UNIVERSITY of MEDICALS &
APPLIEED SCIENCES**



Faculty of Laboratory medicine..

Department of Hematology

Course Specification of Blood Bank I

Course No. (03,03,336)
2022/2023

- Course name: Blood Bank I

I. Course Identification and General Information:				
1	Course Title:	Blood Bank I		
2	Course Code & Number:	03,03,336		
3	Credit Hours:	Theory Hours		
		Lecture	Exercise	Practical
		2	0	2
	Credit Hours	3		
4	Study Level/ Semester at which this Course is offered:	3rd Level / 1 st Semester		
5	Prerequisite (if any):	Immunhematology		
6	Co –Requisite (if any):	None		
7	Program (s) in which the Course is Offered:	Bachelor in laboratory medicine		
8	Language of Teaching the Course:	English		
9	Study System:	semester		
10	Mode of Delivery:	Regular		
11	Location of Teaching the Course:	University Campus		
12	Prepared by:	Dr. Boshra Al-absi		
13	Date of Approval:	2022-2023		

II. Course Objectives and Learning Outcomes (description, objective, course learning outcome)

A. Course Description:

This course covers the antigen-antibody reactions related to red blood cells. It provides students with

basic information about the most important blood group systems; ABO blood group system and Rh blood group system.

III. Course Intended Learning Outcomes (CILOs)		Referenced PILOs
A. Knowledge and Understanding: <i>Upon successful completion of the course, students will be able to:</i>		
a1	Define terms associated with immunohematology.	A1
a2	Summarize the importance of ABO and Rh systems in transfusion medicine and describe the normal characteristics of red cell antigens and antibodies.	A2
B. Intellectual Skills: Upon successful completion of the course, students will be able to:		
b1	Find solutions for ABO and Rh blood group discrepancies	B1
b2	Describe the impact of genetics and inheritance on RBC antigens and Illustrate factors that interfere with antigen-antibody reactions.	B2
C. Professional and Practical Skills: Upon successful completion of the course, students will be able to:		
c1	Perform all aspects of testing within blood bank laboratory.	C2
c2	Describe the most common sources of technical errors in blood bank lab, Interpret, verify and validate blood bank lab results.	C3
D. Transferable Skills: <i>Upon successful completion of the course, students will be able to:</i>		
d1	Relate importance of ABO and Rh systems in transfusion medicine	D1

C. Alignment Course Intended Learning Outcomes with Teaching Strategies and Assessment methods:

(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:

	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
a1	Define terms associated with immunohematology.	Lectures	Exams

a2	Summarize the importance of ABO and Rh systems in transfusion medicine and describe the normal characteristics of red cell antigens and antibodies.	Lectures	Exams
(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:			
	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
b1	Find solutions for ABO and Rh blood group discrepancies	Lectures, Laboratory practical,	Home work
b2	Describe the impact of genetics and inheritance on RBC antigens and Illustrate factors that interfere with antigen-antibody reactions.	Lectures, Laboratory practical,	Home work
C Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:			
	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
c1	Perform all aspects of testing within blood bank laboratory.	Lectures Laboratory practical	Practical exam
c2	Describe the most common sources of technical errors in blood bank lab, Interpret, verify and validate blood bank lab results.	Lectures Laboratory practical	Practical exam
(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:			
	Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
d1	Relate importance of ABO and Rh systems in transfusion medicine	Lectures, Laboratory practical,	Practical exam

IV. Course Content:

A – Theoretical Aspect:

NO.	Units/Topics List	Sub Topics List	Number of Weeks	Contact hour	Learning Outcomes (CILOs)
1	Introduction to Blood Groups and Terminology		1	2	a1, b1
2	ABO Blood Group System		1	2	a1, b1
3	ABO Blood Group System		1	2	a2, b2
4	ABO Subgroups: A subgroup		1	2	a2, b1, b2, c1

5	ABO Subgroups: B subgroup, Bombay and Para-Bombay		1	2	a2, b2
6	Mid-term exam		1	1	
7	ABO Discrepancies and Resolutions: group I and II		1	2	a2, b1, c1
8	ABO Discrepancies and Resolutions: group III and IV		1	2	a1, a3, b1, c1
9					
10	The Rh Blood Group System: Fisher-race, Weiner and Rosenfield terminology	Fisher-race, Weiner and Rosenfield terminology	1	2	a1, b1, b2, c1
11	The Rh Blood Group System: Variations of D Antigen Expression		1	2	a2, b2, c1
12	The Rh Blood Group System: Variations of D Antigen Expression		1	2	a2, A1, b2
13	Rh Typing Reagents		1	2	a2, b1, c1
14	Clinical consideration		1	2	a1, a2, b2
15	Final Theoretical				
	Number of Weeks /and Units Per Semester		14	27	

B - Practical Aspect: (if any)				
No.	Tasks/ Experiments	Number Weeks	of Contact hours	Learning Outcomes
1	Introduction to blood bank reagents, antigen-antibody reaction, preparation of red cell suspension and normal saline	1	2	c1,c2.d1
2	Forward ABO cell grouping using slide method	1	2	c2,d1
3	Forward ABO cell grouping using test tube method	2	2	c1,c2.d1
4	Reverse (plasma) grouping	1	2	c1,c2
5	ABO subgrouping	1	2	c1,c2.d1
6	Rh grouping	1	2	c1, c2
7	Weak D	2	2	c2
Number of Weeks /and Units Per Semester		9	14	

V. Teaching Strategies of the Course:

1-	Lectures:
2-	practical session
3-	seminars

VI. Assessment Methods of the Course:

No	Assignment
1	Written Exams (Short Essays) and Quizzes
2	Multiple Choice Questions (MCQ)
4	Practical Exams (PE)

VII. Assignments:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Midterm Exam	8	20	20%	a1,a2,b1,b2,c1,c1
2	Practical exam	14	30	30%	a1,a2,b1,b2,c1,c2,d1
3	Final Exam	16	50	50%	a1,a2,b1,b2,c1
	Total		100	100%	

VIII. Learning Resources:

1- Required Textbook(s).

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|----|---|
| 1- | Denise Harmening- 2012- Modern Blood Banking & Transfusion Practices- Sixth edition |
| 2- | - Ian Todd, Gavin Spickett, lecture notes in immunology Six Edition (2000). |
| 3- | - Frank Firkin, DeGrushi hematology in medical practice, fifth edition (2005) |

2- Essential References.

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|----|---|
| 1- | AABB (AMERICAN ASSOCIATION OF BLOOD BANK) |
| 2- | Basic & Applied Concepts of Blood Banking and Transfusion Practices 5th Edition
by Paula R. Howard MS MPH MT(ASCP)SBB (Author) |

3- Electronic Materials and Web Sites etc.

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| 1- | Websites, Search engines (Saudi Digital Library, PubMed, Google Scholar) |
| 2- | TRANSFUSIONJournal
http://www.aabb.org/programs/publications/Pages/transfusion.aspx |

X. Course Policies:

1	Class Attendance: Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	Tardiness: -If the student dose not attend for more than 6 times, the student will be obligated to withdrew from the course
3	Exam Attendance/Punctuality: No student shall be allowed to the exam hall after 30 minutes of the start time and shall not leave the hall before half of the exam time has passed.
4	Assignments & Projects: Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	Cheating: Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	Forgery and Impersonation: Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment



	or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
7	Other policies: The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration